

5.5 WATER RESOURCES

In this section the water resources impacts associated with the proposed Pastoria Energy Facility (PEF) 1x 0 Expansion are addressed. The environmental consequences of developing the PEF Expansion are also discussed, along with the Applicant's proposal to apply applicable Conditions of Certification for the existing PEF to the PEF Expansion

The PEF Expansion consists of a nominal 160 MW combined cycle plant. The PEF Expansion area will be approximately two acres located entirely within the existing PEF 31-acre site boundary. The PEF Expansion requires no modification to the existing PEF offsite linear facilities (e.g., electric transmission line, fuel gas supply line, or water supply line). The PEF Expansion will use the existing PEF administration and control, warehouse and shop, and water treatment buildings. Site access and onsite roadways are common with the existing PEF. Figure 3.1-1 of this application depicts the new facilities required for the PEF Expansion project within the footprint of the existing PEF.

The PEF Expansion will require up to 35 acre-feet of additional water per year. Essential plant functions requiring water are evaporative cooling of the CTG inlet air, cooling of the CTG auxiliary heat exchangers, and utility water for washdown and other purposes. Refer to Table 3.4.8-1 for detailed water consumption information and Table 5.5-1 for a summary of water demand for the PEF Expansion and existing PEF projects.

5.5.1 Affected Environment

The affected environment for water resources potentially impacted by the PEF Expansion is as described in 99-AFC-7. The Water Resources Section 5.5 of 99-AFC-7 is included for reference as part of Attachment D, Water Resources Materials, appended to this application.

5.5.1.1 Water Supply

The PEF Expansion will require up to 55 acre-feet of additional water per year. The PEF and the PEF Expansion projects combined will require less than 5,000 acre-feet of water per year (AFY) at full plant load. Essential plant functions requiring water are evaporative cooling of the CTG inlet air, cooling of the CTG auxiliary heat exchangers, and utility water for washdown and other purposes.

The maximum makeup water flow rate to the existing PEF is limited by contract to 10.5 cubic feet per second (4,713 gpm). This limit will also apply to the PEF Expansion. With the PEF Expansion included, the combined facilities (existing PEF and PEF Expansion) will operate at or below this limit when operating at full capacity. The peak water demand will occur during the months of June, July, August and September. Table 5.5-1 summarizes the water usage rates for the PEF Expansion and the existing PEF. Refer to Section 3.4.8 of this

**TABLE 5.5-1
CALCULATION SHEET¹**

Plant Process Makeup Water Required	PEF Expansion		Existing PEF (99-AFC-7) 750 MW	
	Average Day ⁽³⁾	Maximum Summer Day ⁽²⁾	Average Day ⁽³⁾	Maximum Summer Day ⁽²⁾
GPM	34	66	2,627	4,628
Ac-ft/yr	55 ⁽⁴⁾	-----	4,237 ⁽⁶⁾	-----

(1) Based upon Table 3.4.8-1

(2) "Maximum Summer Day" is based on ambient conditions of 114° F db, 73° F wb with fogging on.

(3) "Average Day" is based on 63.2 deg F db and 50.1 deg F wb with fogging on.

(4) Annual water consumption is based on 8760 hours per year at "Average Day" conditions

(5) Annual water consumption is based on June through September (inclusive) operation at monthly average reduced capacity between 11:30 pm and 8:30 am as follows:

June	83%
July	69%
August	78%
September	95%

application for a description of water demand and Attachment D, Water Resources Materials, of this application for a complete description of water supply.

5.5.2 Environmental Consequences

Because the PEF Expansion will share common facilities with the existing PEF and no new ground disturbance will be required, no new impacts to surface water resources will occur.

The Presiding Member's Decision (PMD) for the existing PEF (99-AFC-7) includes detailed information on the PEF water supply and the potential environmental impacts associated with the water supply. The PMD is included for reference in Section 9.0 of this application. The PMD evaluated a 5,000 AFY requirement and concluded that this amount would not result in any significant adverse impacts to water resources as long as the mitigation measures were implemented.

5.5.3 Mitigation Measures

The Applicant proposes to apply the applicable Conditions of Certification for the existing PEF to the PEF Expansion. The Conditions of Certification for the PEF are included in Section 9.0 of this application. With the implementation of the applicable Conditions of Certification, no significant unavoidable adverse impacts to water resources are anticipated due to construction or operation of the PEF Expansion.

Construction of the existing PEF project is nearly completed. Construction has been conducted in compliance with the existing Conditions of Certification for 99-AFC-7, and no new ground disturbance is proposed for the PEF Expansion project.

5.5.4 LORS Compliance

The PEF Expansion will comply with applicable LORS related to water resources. A complete list of the applicable LORS for water resources is included in Section 7.0 LORS of this application.